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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/521,529	06/27/2005	Per Thomas Moe	TS6375 US	8783

7590
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EXAMINER

MEHTA, MEGHA S

ART UNIT	PAPER NUMBER
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1793

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02/25/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/521,529	Applicant(s) MOE ET AL.	
	Examiner MEGHA MEHTA	Art Unit 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 January 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 4-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 4-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 January 2009 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>1/13/2009</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 2 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 4,669,650 Moe in view of US 2,604,569 Denneen.

Regarding claim 1, Moe teaches a method for interconnecting tubulars by forge welding, comprising shaping the tubular ends that are to be welded together into an inwardly sloping configuration; in which the sloping configuration is such that when the tubular ends are heated during the forge welding process the heated tubular ends deform as a result of thermal expansion into a substantially longitudinally oriented cylindrical shape, wherein the sloping angle of the inner and outer walls of the tubular ends is selected such that the ratio between the average diameter D(t) of the tip of the tubular end and the average diameter D(b) of the base of the tubular end is related to an estimated temperature difference between said tip and base of the tubular during the forge welding process and a thermal expansion co-efficient of the steel grade or grades of the tubular end (column 1, lines 5-6 and column 3, lines 11-15 and 24-26). Moe does not teach the concave and convex end shapes. Denneen teaches a method of welding cylindrical members together where the end face of the wall of one of the ends has a convex shape and the end face of the wall of the other end has a concave shape that is complementary to and intermeshes with said convex shape (figure 2). It would have been obvious to one of

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ordinary skill in the art at the time of the invention to include Denneen's end configuration in the method of Moe because such a convex/concave interlocking allows for a more secure connection of the tubes. The limitation "the end face of the wall of one of the tubular ends" is not limited to the thickness of the wall as Applicant's invention describes. The circumferential face of the wall still reads on "the end face of the wall".

Regarding claim 2, Moe teaches the method of connecting tubulars. Denneen teaches the end face configuration. Neither Moe nor Denneen teaches the ratio of $D(t)/D(b)$. However, it would have been obvious to one of ordinary skill in the art at the time of the invention to determine the optimum ratio of $D(t)/D(b)$. "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation," (MPEP 2144.05 Section II).

Regarding claim 4, Moe teaches the tubular ends machined to a reduced wall thickness in the welding zone (column 3, lines 24-25).

3. Claims 5-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 4,669,650 Moe in view of US 2,604,569 Denneen and further in view of JP 03-243286 Masakatsu et al.

Regarding claim 5, Moe teaches the method of connecting tubulars. Denneen teaches the end face configuration. Neither Moe nor Denneen teaches the composition of the pipes or the cladding. Masakatsu teaches a method for joining clad tubes where the tubulars comprising a relatively lower grade steel base pipe and a higher grade steel cladding on the inner and/or outer surface of the base pipe and the end faces are shaped such that when the tubular ends are pressed together the end faces of the cladding(s) touch each other before the end faces of the base pipe ends touch each other (p.2 line 46-page 3, line 1 and figure 2). It would have been obvious to

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include the composition and configuration of Masakatsu in the method of Moe and Denneen because this cladding and configuration protects the pipes from final machining during the welding and polishing process.

Regarding claim 6, Moe teaches wedge shaped ends (column 3, line 11). Neither Moe nor Denneen teaches claddings. Masakatsu teaches a method for joining clad tubes where the tips are formed by claddings (figure 2). It would have been obvious to include the composition and configuration of Masakatsu in the method of Moe and Denneen because this cladding and configuration protects the pipes from final machining during the welding and polishing process.

Regarding claim 7, Moe teaches the method of connecting tubulars. Denneen teaches the end face configuration. Neither Moe nor Denneen teaches the cladding. Masakatsu teaches a method for joining clad tubes where the adjacent end portions of the adjacent base pipes are covered with the clad metal (figure 2). This configuration is capable of allowing further machining of said end portions without exposing the base pipes. It would have been obvious to include the composition and configuration of Masakatsu in the method of Moe and Denneen because this cladding and configuration protects the pipes from final machining during the welding and polishing process.

Regarding claim 8, Moe teaches during at least part of the forge welding operation a flushing gas is flushed around the welding zone and at least part of the flushing gas is injected into the welding zone from the uncladded side of the tubular, such that the injected flushing gas can continue to reach the ends of the still spaced base pipes after the claddings have touched each other (column 2, lines 56-65).

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Regarding claim 9, Moe teaches the flushing gas as a reducing flushing gas (column 2, lines 65-67).

4. Claims 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 4,669,650 Moe in view of US 2,604,569 Denneen and JP 03-243286 Masakatsu et al as applied to claim 9 above, and further in view of US 3,941,299 Godfrey.

Regarding claims 10-12, Moe teaches the method of connecting tubulars. Denneen teaches the end face configuration. Masakatsu teaches cladding. None of Moe, Denneen or Masakatsu teaches the composition of the flushing gas. Godfrey teaches a method of brazing metal pieces together where a non-explosive flushing gas mixture comprises more than 90% by volume of nitrogen and at least 2% by volume of hydrogen (column 2, lines 55-59). It would have been obvious to substitute welding for brazing because the substitution of one known element for another would have yielded predictable results to one of ordinary skill in the art at the time of the invention. It would have been further obvious to include the flushing gas of Godfrey in the method of Moe, Denneen and Masakatsu because a non-reactive flushing gas prevents oxidation during the welding process.

Response to Arguments

5. Applicant's arguments filed January 5, 2009, have been fully considered but they are not persuasive. Applicant asks the Examiner to clarify the position of "circumferential face" reads on "end face". According to Merriam-Webster's online dictionary, "end" is defined as "the part of an area that lies at a boundary." The openings of the tubes are ends, but so is the wall of the tube. The furthest point of the wall from the longitudinal axis defines the end of the tube.

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Applicant also argues that Moe's tube does not become cylindrically shaped by thermal expansion. However, based upon figure 2, it is seen that the temperature distribution is centered on the thinnest part of the tube. That means the thinnest part is also the hottest part. This would then expand more than the rest of the tube, filling out the cylindrical form of the tube. Applicant argues that the form comes from the flow of material during welding. However, the material flow is also directly related to the amount of heat possessed by that material. The more heat there is, the more it will flow.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MEGHA MEHTA whose telephone number is (571)270-3598. The examiner can normally be reached on Monday to Friday 7:30 am to 5:00 pm EST.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jessica Ward can be reached on 571-272-1223. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Megha Mehta/
Examiner, Art Unit 1793

/Kevin P. Kerns/
Primary Examiner, Art Unit 1793